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AN INLAND OCCURRENCE OF THE GRASSHOPPER *LEPTY SMA MARGINICOLLIS* (SERVILLE) IN VIRGINIA (ORTHOPTERA: ACRIDIDAE: LEPTYSMINAE). — Several years ago, while the first author was collecting insects beside an impoundment of the Slate River in Buckingham County, Virginia, his attention was engaged by the curiously squirrel-like escape behavior of a small agile grasshopper that was present in considerable numbers on emergent vegetation. When disturbed by the observer's close approach, individuals would fly quietly to a nearby stem of a large rush (*Juncus* sp.), and upon landing move quickly to the opposite side. By hugging the rush stem closely, the grasshoppers became effectively concealed both by their position and coloration (gray-brown) that matched the plant closely. After a few failed capture attempts using thumb and forefinger, RLH learned to simply reach around the stem with his cupped hand and seize the fugitives *in situ*. Relying on passive evasion, they rarely took flight to escape this strategy. Investigation of the Slate River at two road crossings (County Routes 746 and 642) downstream from the impoundment west of Andersonville disclosed no lentic habitats that might accommodate this insect.

The unfamiliar grasshopper was quite distinctive, being slender and elongate with a pointed head and three-sided antennae, and possessing a whitish stripe that extended from the eye to the base of the hind legs. Reference to Blatchley's (1920) manual of eastern orthopterans quickly provided identification as *Lepty sma marginicollis* (Serville), an austral species stated to range from Maryland to Florida, thence west to southern California and Texas. Capinera et al. (2004) gave the range as Maryland to Florida, west to New Mexico and Colorado. The common name of "cattail toothpick grasshopper" that has been applied to this species by various authors (e.g., Helfer, 1987; Capinera et al., 2002, 2004) seems appropriate. Both Capinera et al. (2002) and Capinera et al. (2004) provided a color image of the species and numerous color photos are available on BugGuide.net (2012) and other internet sites (e.g., Flickr.com). The range of the nominate subspecies was listed by Roberts (1977) as Virginia to Florida and west to Kansas and Texas; also extreme north central and eastern Mexico (Chihuahua, Tamaulipas, and Veracruz). Two other subspecies and four congeners occur farther west and south (to Argentina) (Roberts, 1977; Eades et al., 2012).

The unusual escape behavior of *L. marginicollis* has been reported previously by a number of authors (e.g.,

Dakin & Hays, 1970; Capinera et al., 2002, 2004). This species always remains on vegetation, never alighting on the ground, and flies to another plant when disturbed, often travelling "considerable distances" in the process (Dakin & Hays, 1970).

A search through the VMNH grasshopper backlog produced a number of additional specimens from Virginia, nearly all of them from the Coastal Plain. The list of Virginia Orthoptera by Fox (1917) provided additional records from the same region, as did the more extensive coverage of the southeastern United States by Rehn & Hebard (1916). Those authors cited many collections (ANSP), including Piney Point, Maryland, and Washington, DC. Davis (1926) did not record *L. marginicollis* during his surveys near Wingina in Nelson County nor did Hebard (1945) find it in Bath and Highland counties farther west. Also, Arquette et al. (2010) lacked records from the Virginia barrier islands. To our knowledge, there are no documented records of this species from the lower Delmarva Peninsula. Recent photographs of live Virginia specimens of *L. marginicollis* from Prince William County (two sites in Woodbridge) and Williamsburg are posted on the BugGuide.net and Flickr.com websites.

The range of *L. marginicollis* in North Carolina extends west as far as Charlotte and Greensboro (Brimley, 1938; Rehn & Eades, 1961; NCSU specimens). Both of these localities are in the Piedmont, but like its distribution in Virginia, this species is largely confined to the Coastal Plain region of that state (Rehn & Eades, 1961). At least six North Carolina counties are represented by recent on-line photos of this species, all but one from the Coastal Plain or Sandhills regions of the state. The generalized range map for *L. marginicollis* in Capinera et al. (2004) implies that the species occurs statewide in both Virginia and North Carolina, but VMNH and other records are in closer agreement with the Virginia localities and map presented in Rehn & Eades (1961). These sources indicate a primarily coastal distribution in Virginia, with no known records west of the population recently discovered in Buckingham County (Fig. 1).

Lepty sma m. marginicollis is represented in the VMNH collection by 41 specimens from the following Virginia localities:

Buckingham Co.: Slate River impoundment at public boat launch facility, 4 mi W of Andersonville (37.27.30N, 78.38.34W), 14 October 2002, R. L. Hoffman (5); same but 10 April 2009 (1). *Caroline Co.*: Fort A. P. Hill, 13 September 1993, S. M. Roble, VDNH survey (1); Fort A. P. Hill, Madison Pond, 21 June 2005, S. M. Roble, VDNH survey (2); Fort A. P. Hill, Ware Creek beaver ponds, 20 September 2005,

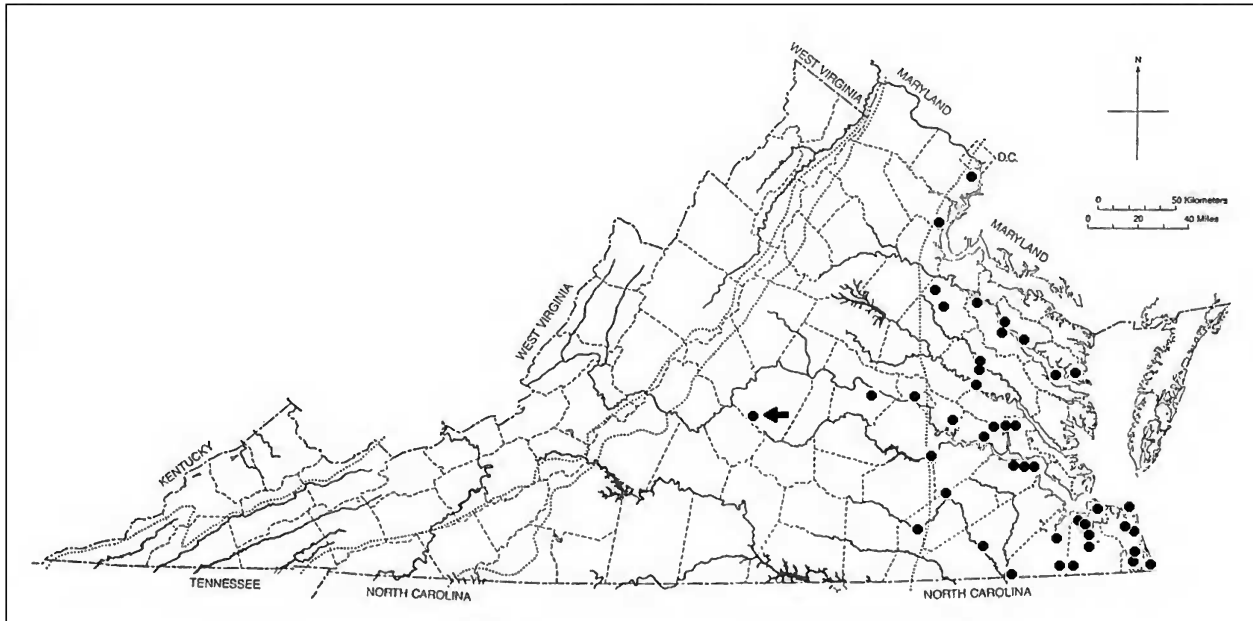


Fig. 1. Known distribution of *Leptysma m. marginicollis* (Serville) in Virginia, based on specimens in the Virginia Museum of Natural History and literature records (Rehn & Hebard, 1916; Fox, 1917; Rehn & Eades, 1961). The arrow marks the location of the Buckingham County population.

S. M. Roble and A. C. Chazal, VDNH survey (2). *Henrico Co.*: Glendale, 25 September 1960, A. Morrow (1). *James City Co.*: Edwards Swamp, 3 July 1990, K. A. Buhlmann, VDNH survey (1). *King William Co.*: Pamunkey River, Broad Creek marsh, 17 June 1999, A. C. Chazal and S. M. Roble, VDNH survey (1). *New Kent Co.*: Diascund Creek, 29 April 1991, K. A. Buhlmann, VDNH survey (2). *Powhatan Co.*: Fine Creek Mills, 24 April 1990, C. A. Pague, VDNH survey (1). *Prince George Co.*: Petersburg, 25 September 1960, Blackburn (1). *Prince William Co.*: Quantico Creek, 21 September 1998, A. C. Chazal and J. C. Ludwig, VDNH survey (1). *Sussex Co.*: Cherry Orchard Bog Natural Area Preserve, 27 May 2005 (1) and 29 May 2008 (1), both S. M. Roble and C. S. Hobson, VDNH survey (1). *City of Richmond*: University of Richmond campus, various dates [1933-1939], student collectors (10, all ex UR collection). *City of Suffolk*: South Quay pine barrens, ca. 6 mi S of Franklin, 24 October-16 December 2002, S. M. Roble, VDNH survey (2). *City of Virginia Beach*: Dam Neck Navy Base, 6 June 1990, K. A. Buhlmann, VDNH survey (1); False Cape State Park, 18-20 May 1998, S. M. Roble, VDNH survey (4); North Landing River, 10 March 1990 (1) and 15 May 1992 (1), both K. A. Buhlmann, VDNH survey; Oceana Naval Air Station, 18 October 2001, K. L. Derge and A. C. Chazal, VDNH survey (1).

Leptysma marginicollis preferentially consumed cattail (*Typha* spp.), pickerelweed (*Pontederia*

cordata), Mexican seedbox (*Ludwigia octovalvis*), and soft rush (*Juncus effusus*) in laboratory feeding trials (Squitier & Capinera, 2002). An earlier study determined that this grasshopper restricts its feeding to cattails, grasses, and sedges, and that oviposition occurs endophytically in early spring (Hilliard, 1982).

In Virginia, *L. marginicollis* is "common locally in tidal marshes, where it occurs most frequently in the areas of *Scirpus americanus*, largely avoiding the true salt marsh grass, *Spartina glabra* [= *S. alterniflora*]" (Fox, 1917). Fox also noted that it is found in grassy or cattail wetlands at the head of tidal streams and grassy thickets bordering coastal streams. Near Tappahannock, adults were on *Andropogon* in dry upland fields in late April (Fox, 1917). Rehn & Hebard (1916) reported that this species inhabits tall reeds and grasses in marshes and swamps, as well as "wet spots in pine woods." They also found it in high bushes bordering a gum swamp near Wilmington, North Carolina. More sampling of vegetated wetlands in the Piedmont region of Virginia (and perhaps areas farther west) may result in the discovery of additional populations of this interesting species.

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LITERATURE CITED

- Arquette, T. J., J. F. Barimo, & R. R. Mills. 2010. Grasshoppers (Orthoptera: Acrididae) from the Virginia barrier islands. *Banisteria* 35: 47-52.
- Blatchley, W. S. 1920. Orthoptera of Northeastern North America, with Especial Reference to the Faunas of Indiana and Florida. Nature Publishing Company, Indianapolis, IN. 784 pp.
- Brimley, C. S. 1938. The Insects of North Carolina. Being a List of the Insects of North Carolina and Their Close Relatives. North Carolina Department of Agriculture, Raleigh. 560 pp.
- BugGuide.net. 2012. *Leptysmia marginicollis marginicollis*. <http://bugguide.net/node/view/273135/bgimage> [accessed 15 December 2012]
- Capinera, J. L., C. W. Scherer, & J. M. Squitier. 2002. Grasshoppers of Florida. University of Florida Press, Gainesville. 71 pp.
- Capinera, J. L., R. D. Scott, & T. J. Walker. 2004. Field Guide to Grasshoppers, Katydid, and Crickets of the United States. Cornell University Press, Ithaca, NY. 249 pp.
- Dakin, M. E., Jr. & K. L. Hays. 1970. A synopsis of Orthoptera (*sensu lato*) of Alabama. Auburn University Agricultural Experiment Station Bulletin 404. 118 pp.
- Davis, W. T. 1926. An annotated list of the Dermaptera and Orthoptera collected in mid-summer at Wingina, Virginia, and vicinity. *Journal of the New York Entomological Society* 34: 27-41.
- Eades, D. C., D. Otte, M. M. Cigliano, & H. Braun. 2012. Orthoptera Species File Online. Version 2.0/4.1. <http://Orthoptera.SpeciesFile.org> [accessed 15 December 2012]
- Flickr.com. 2012. <http://www.flickr.com/photos/39432681@N05/4053624821> [accessed 15 December 2012]
- Fox, H. 1917. Field notes on Virginia Orthoptera. *Proceedings of the United States National Museum* 52 (2176): 199-234.
- Hebard, M. 1945. Orthoptera of the Appalachian Mountains in the vicinity of Hot Springs, Virginia, and notes on other Appalachian species and recent extensions of the known range of still other southeastern species. *Transactions of the American Entomological Society* 71: 77-97.
- Helfer, J. R. 1987. How to Know the Grasshoppers, Crickets, Cockroaches and Their Allies. Dover Publications, Inc., Mineola, NY. 363 pp.
- Hilliard, J. R., Jr. 1982. Endophytic oviposition by *Leptysmia marginicollis marginicollis* and *Stenacris vitreipennis* (Orthoptera: Acrididae: Leptysmiinae) with life history notes. *Transactions of the American Entomological Society* 108: 153-180.
- Rehn, J. A. G., & D. C. Eades. 1961. The tribe Leptysmiini (Orthoptera; Acrididae; Cyrtacanthacridinae) as found in North America and Mexico. *Proceedings of the Academy of Natural Sciences of Philadelphia* 113: 81-134.
- Rehn, J. A. G., & M. Hebard. 1916. Studies in the Dermaptera and Orthoptera of the Coastal Plain and Piedmont regions of the southeastern United States. *Proceedings of the Academy of Natural Sciences of Philadelphia* 68: 87-314.
- Roberts, H. R. 1977 [1978]. A revision of the tribe Leptysmiini except the genus *Cylindrotettix* (Orthoptera; Acrididae: Leptysmiinae). *Proceedings of the Academy of Natural Sciences of Philadelphia* 129: 33-69.
- Squitier, J. M., & J. L. Capinera. 2002. Host selection by grasshoppers (Orthoptera: Acrididae) inhabiting semi-aquatic environments. *Florida Entomologist* 85: 336-340.
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